Trust in the Health Care System and the Use of Preventive Health Services by Older Black and White Adults

Donald Musa, DrPH, Richard Schulz, PhD, Roderick Harris, MSPH, Myrna Silverman, PhD, and Stephen B. Thomas, PhD

There is strong empirical evidence of health care disparities between Black and White Americans. Blacks are less likely than are Whites to receive many needed services, including routine preventive care. 1–5 The causes of disparities in health care are complex and have been the subject of considerable research; socioeconomic differences and structural characteristics (such as lack of access to care) are important sources of care disparities, and there is significant evidence that racial bias in the health care system is also a major factor in disparities in care between Blacks and Whites. 1

Blacks' distrust of physicians and the health care system may also contribute to health care disparities. Studies have demonstrated that Blacks exhibit less trust in the health care system. 6-9 There are a variety of mechanisms through which this distrust may occur, including Blacks' personal experiences with racism, their knowledge of a history of racism in the health care system-including circumstances in which Blacks were victimized, such as the Tuskegee Syphilis Study^{10–12}—and social and cultural distance between Black patients and White physicians.13 Taken together, these individual experiences constitute a broader cultural memory of abuse that may contribute to belief in conspiracy theories among Blacks. 14,15 Goertzel reported that belief in conspiracies was correlated with lack of interpersonal trust and that Blacks were more likely to believe in conspiracy theories than were Whites.16

Trust plays a central role in all medical relationships and is an important contributor to positive therapeutic outcomes. ^{17–20} Lack of patient trust is associated with less doctor—patient interaction, poor clinical relationships that exhibit less continuity, reduced adherence to recommendations, worse self-reported health, and reduced utilization of health care services ^{17–22}; thus, Blacks' relatively lower trust in the health care system puts them at greater risk of all these negative outcomes. When

Objectives. We sought to find racial differences in the effects of trust in the health care system on preventive health service use among older adults.

Methods. We conducted a telephone survey with 1681 Black and White older adults. Survey questions explored respondents' trust in physicians, medical research, and health information sources. We used logistic regression and controlled for covariates to assess effects of race and trust on the use of preventive health services.

Results. We identified 4 types of trust through factor analysis: trust in one's own personal physician, trust in the competence of physicians' care, and trust in formal and informal health information sources. Blacks had significantly less trust in their own physicians and greater trust in informal health information sources than did Whites. Greater trust in one's own physician was associated with utilization of routine checkups, prostate-specific antigen tests, and mammograms, but not with flu shots. Greater trust in informal information sources was associated with utilization of mammograms.

Conclusions. Trust in one's own personal physician is associated with utilization of preventive health services. Blacks' relatively high distrust of their physicians likely contributes to health disparities by causing reduced utilization of preventive services. Health information disseminated to Blacks through informal means is likely to increase Blacks' utilization of preventive health services. (*Am J Public Health*. 2009;99:1293–1299. doi:10.2105/AJPH.2007.123927)

O'Malley et al.²² evaluated respondents' answers to a global question assessing overall trust in personal physicians, they found that greater trust was associated with higher overall use of a number of preventive services among lowincome Black women 41 years and older.

However, little is known about whether distrust affects use of specific preventive services differently. Because trust in the health care system is conceived as consisting of a number of types and dimensions, 17,19,20 it is also possible that different aspects of trust may affect service use differently, thus warranting more detailed study of how the dimensions of trust may affect use of preventive services among various populations. Because of its likely origins in racial bias, Blacks' health care—related distrust may have somewhat different effects from that of Whites, perhaps manifesting as institutional distrust as opposed to interpersonal distrust.

We explored these issues by examining the association of different aspects of health care—related trust with receipt of preventive health services among older Blacks and Whites. We focused on older adults because preventive services such as immunizations, routine physical examinations, and screening for cancer and other diseases can greatly reduce premature mortality and morbidity among this population and are critical to sustaining older adults' health.²³ Thus, disparities in receipt of preventive services are an especially strong contributor to disparities in health outcomes for older adults.

METHODS

Sample and Data Collection

We took our data from a population-based telephone survey examining self-care for chronic disease among adults 65 years and older. Candidates for the study sample were randomly selected from the Medicare Enrollment File (MEF) for Allegheny County, Pennsylvania, stratified by race/ethnicity and

gender. Blacks were oversampled to ensure adequate subsamples for comparison. The national MEF includes more than 96% of adults 65 years and older in the United States. Non-institutionalized Medicare enrollees were eligible for the survey if they were cognitively and physically well enough to participate.

We obtained telephone numbers for our sample candidates from a vendor, and we supplemented those numbers by conducting a directory search. We excluded persons for whom no telephone number was available (largely those with no telephones or unlisted numbers). Although this exclusion may have introduced a coverage bias, a comparison of demographic data from completed interviews with 2000 census data for all older adults in the county found few differences. However, we did find that the interviewed sample was younger and more educated than was the general population of older adults.

Trained interviewers conducted computer-assisted telephone interviews between June 2001 and May 2002. A minimum of 8 callbacks and a mean of 16 callbacks were attempted. Calls were made at various times and on various days to maximize response. A total of 5094 interviews were completed, and the overall response rate was 39.6% as quantified by the American Association of Public Opinion Research, Response Rate 4.²⁴

All 5094 respondents were administered a core set of questions. Additional questions were modularized, and the sample was randomly divided into 3 parts before survey administration, each of which was asked a different set of supplemental questions to minimize respondent burden while maximizing content. The analysis reported here includes 1681 respondents who answered the set of supplemental questions about health carerelated trust. The response rate for this module was 39.5% (response rates for the other 2 modules were 39.2% and 40.2%). Of the 1681 respondents included in the analysis, 683 (40.6%) were Black and 998 (59.4%) were White.

Measures

Our primary independent variable was trust in the health care system, which takes the form of both social trust in health institutions and interpersonal trust in physicians.¹⁷ Trust in physicians has been categorized into domains of technical competency, interpersonal competency, and fidelity. ²⁰ In this study we included measures of both interpersonal trust in physicians (trust in the doctor and trust in the competence of doctor's care) and social trust in health care information sources (trust in formal and informal health information sources). We assessed these kinds of trust by administering 10 survey questions from a battery developed to study trust in physicians and participation in medical research. ⁷

Respondents were asked to agree or disagree with 5 statements indirectly measuring trust in their physician, trust in physicians in general, and trust in medical research. These questions assessed the respondent's trust in their own physician, trust that physicians are competent, and trust that the respondent's physician would not encourage the respondent to participate in research not in the respondent's best interest. Additional questions assessed trust in 5 health information sources on a 4-point scale (from "definitely would trust") to "definitely would not trust"). We dichotomized these questions for compatibility with

the first set of questions. Four of these questions addressed social aspects of trust (trust in formal and informal information sources), whereas a fifth question addressed trust in information from one's physician. We used a factor analysis, described below, to identify underlying dimensions among these 10 questions, and we constructed scales based on the results

Surveyors assessed use of preventive health services by asking questions about receipt of influenza vaccination within the previous year, receipt of a prostate-specific antigen (PSA) test within the previous year for men, receipt of a mammogram within the previous 2 years for women, and having a routine checkup within the previous year. We included a question about routine checkups because many recommended preventive services are typically carried out during these examinations (e.g., blood pressure and cholesterol screenings).

Respondent race came from the respondent's self-report, supplemented by the respondent's MEF classification. Persons who were not Black or White were excluded from the analysis. We controlled for a number of

TABLE 1—Characteristics of the Sample, by Race: Allegheny County, Pennsylvania, 2001–2002

Characteristic	Total (N = 1681)	Black (n = 683)	White (n = 998)	P ^a
Women, %	51.3	54.5	49.2	.034
Mean age, y (SD)	74.3 (6.2)	74.1 (6.1)	74.4 (6.2)	NS
Education, %				
Less than high school diploma	16.8	24.3	11.6	<.001
High school diploma	43.0	40.1	45.1	
Some college	21.8	23.9	20.4	
College degree	18.4	11.8	22.9	
Married, %	55.3	44.5	62.6	<.001
Mean SF-8 physical component score (SD)	46.7 (9.7)	45.6 (10.1)	47.5 (9.4)	<.001
Mean SF-8 mental component score (SD)	51.8 (8.1)	50.9 (8.7)	52.3 (7.6)	.001
Mean number of health conditions (SD)	2.6 (1.7)	2.8 (1.8)	2.4 (1.6)	<.001
Has supplemental health insurance, %	85.3	77.5	90.7	<.001
Has regular health care provider, %	92.9	90.5	94.6	.001
Use of preventive health services				
Flu shot in previous year, %	67.2	60.1	72.1	<.001
PSA test in previous year among men, %	64.7	57.5	69.1	.001
Mammogram in previous 2 years among women, %	76.7	79.8	74.3	.036
Routine checkup in previous year, %	88.6	89.5	88.0	NS

Note. NS = not significant; PSA = prostate-specific antigen.

^aSignificance was calculated using either the χ^2 or t test; α <.05.

variables previously shown to influence the use of preventive health services, including gender, age, education (less than high school, high school, some college or vocational school, college degree), marital status (married, unmarried), self-reported health status (physical and mental health summary scales of the 8-item Short-Form Health Survey),²⁵ and number of health conditions (from a list of 13 conditions). In addition, having insurance that is supplemental to Medicare and having a regular health care provider have been shown to be important predictors of preventive health service use, so we included these variables as covariates. 26,27

Analysis

We performed analyses with SPSS 13.0 for Windows. We used the χ^2 and t tests to examine differences by race in preventive service use and levels of trust. To examine underlying dimensions of trust and create a more parsimonious set of measures, we performed exploratory factor analysis of the trust items with principal components extraction and both varimax and promax rotation analyses. These resulted in almost identical outcomes, lending support to the final factor structure. Scales for each factor were calculated as the mean of responses to the items. The scales, ranging from 0 to 1, measured increasing trust and can be interpreted as the proportion with greater trust.

We used multivariate logistic regression to examine the association of trust with preventive service use; we controlled for covariates. We introduced interaction terms between race and trust for each trust variable to evaluate whether trust had different effects for Blacks and Whites. Respondents with missing data were excluded from all analyses.

RESULTS

Respondent demographics, health characteristics, and use of preventive services are shown in Table 1 by race. With the exception of age, all demographic and health variables demonstrate significant differences by race: Blacks were more likely to be female, to be unmarried, and to have less education. Blacks also had worse health as measured by the SF-8 physical and mental health status scores, and they reported more health conditions. Finally, Blacks were less likely to have a regular health

care provider and to have supplemental health insurance.

With regard to preventive service use, Whites were more likely to report having received an influenza vaccine in the previous year than were Blacks (72.1% vs 60.1%; P < .001). White men were more likely to have had a PSA test in the previous year (69.1% vs 57.5%; P=.001), and Black women were more likely to have had a mammogram in the previous 2 years (79.8% vs 74.3%; P=.036). No significant racial differences were found for routine checkups in the previous year.

Overall, levels of trust were high for both Blacks and Whites (Table 1). Blacks were less likely to agree that their doctor would fully

explain medical research (84.0% vs 90.1%; P < .001) and that their doctor would not ask them to participate in harmful research (86.4% vs 93.5%; P < .001). Whites were more likely to agree that doctors use medical terms without explaining them (65.5% vs 60.0%; P=.024). Blacks were more likely to report trust in health information from "church or religious leaders" (65.1% vs 50.7%; P<.001).

Factor analysis results with varimax rotation are reported in Table 2, showing 4 factors with an eigenvalue above 1.0 (accounting for 57% of the variance) and the questions that made up each factor. Factor loadings ranged from .37 to .85, with only 1 factor loading below .50. The 4 factors were labeled to reflect their mix of

TABLE 2—Factor Analysis of Trust Items and Trust Scale Scores Comparing Black (n = 683) and White (n = 998) Respondents: Allegheny County, Pennsylvania, 2001-2002

Factors Identified and Individual Items		% Who Trust/Agree With Individual Items			Trust Scale Score ^a		
		White	P^{b}	Black	White	P^{c}	
Trust in formal health information sources				.909	.922		
Would you trust health information from the	92.0	92.6					
local health department in your community?d							
Would you trust health information from the	90.8	92.8					
Centers for Disease Control and Prevention,							
sometimes referred to as the CDC?d							
Trust in informal health information sources				.660	.595	<.001	
Would you trust health information	67.3	66.5					
from your friends or family? ^d							
Would you trust health information from your	65.1	50.7	<.001				
church or religious leaders? ^d							
Trust in one's own doctor				.916	.948	.002	
If your doctor wanted you to participate	84.0	90.1	<.001				
in research, you trust he would fully explain it to you.e							
Your doctor would not ask you to participate in	86.4	93.5	<.001				
medical research if he thought it would harm you.e							
Do you believe that you can freely ask	97.6	97.1					
your doctors any questions you want? ^f							
Would you trust health information from your own doctor? ^d	97.5	98.7					
Trust in the competence of doctors' care				.324	.316		
Sometimes doctors use medical terms	60.0	65.5	.024				
without explaining what they mean. ^{e,g}							
You sometimes wonder if the doctor's diagnosis is correct. e,g	76.3	72.1					

^aCalculated as the mean of trust items. Scores range from 0 to 1 and can be interpreted as the proportion with greater trust.

 $^{^{\}mathrm{b}}$ Significance was calculated using the χ^2 test; α <.05.

^cSignificance was calculated using the t test; α < .05.

^dThe number shown is the percentage answering "definitely" or "probably" would trust.

eThe number shown is the percentage agree.

^fThe number shown is the percentage answering yes.

gAnswers to negatively worded items were reversed to indicate trust.

questions: trust in formal health information sources, trust in informal health information sources, trust in one's own doctor, and trust in the competence of the doctor's care. The latter included items with negative wording that were reversed to indicate trust.

Table 2 also displays means on the scales constructed for each factor by race. Trust in formal health information sources and trust in one's own doctor were high. Trust in informal health information sources was lower, and trust in the competence of doctors' care was much lower. Blacks were less likely to have trust in their own doctor (.916 vs .948; P=.002), but they were more likely to have trust in informal health information sources (.660 vs .595; P<.001).

Logistic regression results are shown in Table 3. For influenza vaccination, the adjusted odds of Blacks receiving a flu shot in the previous year were two thirds that of Whites (odds ratio [OR]=0.66; 95% confidence interval [CI]=0.52, 0.84). Other associations with receiving a flu shot included age (4% increase for each additional year of age [OR=1.04; 95% CI=1.02, 1.06]), being married (OR=1.32; 95% CI=1.01, 1.69), and having a higher number of health conditions

(OR=1.21 for each additional health condition; 95% CI=1.11, 1.31). Having supplemental health insurance (OR=1.63; 95% CI=1.17, 2.26) and having a regular health care provider (OR=1.62; 95% CI=1.04, 2.53) were also associated with receiving a flu shot, confirming findings in the literature. None of the results on the trust scales were significantly associated with receiving a flu shot.

The odds of men receiving a PSA test in the previous year were 8.59 times higher for men reporting greater trust in their own doctor than for those reporting lower trust. Having supplemental health insurance (OR=2.27; 95% CI=1.43, 3.59) and having more health conditions (OR=1.15; 95% CI=1.02, 1.29) were also associated with receiving a PSA test.

The odds of a woman receiving a mammogram in the previous 2 years were significantly higher for women with greater trust in their own doctor (OR=3.97; 95% CI=1.17, 13.55) and greater trust in informal health information sources (OR=1.60; 95% CI=1.01, 2.55), and the odds of Black women having had a mammogram were twice that of White women (OR=2.02; 95% CI=1.33, 3.06). Having supplemental health insurance (OR=2.01; 95% CI=1.18, 3.43), having a regular health care provider

(OR=2.60; 95% CI=1.30, 5.19), and being married (OR=1.91; 95% CI=1.24, 2.93) were also associated with having had a mammogram.

The odds of having had a routine checkup in the previous year were 3.04 times higher for those reporting greater trust in their own doctor than for persons reporting lower trust (95% CI=1.02, 9.05). Additionally, having supplemental health insurance (OR=2.25; 95% CI=1.43, 3.53), having a regular health care provider (OR=3.80; 95% CI=2.28, 6.33), and having a higher number of health conditions (OR=1.54; 95% CI=1.33, 1.78) were associated with receiving a routine checkup.

In separate analyses, we entered interaction terms (the product of the race variable and the results of each trust scale) into the regression models to investigate interactions between race and trust. No interactions were found to be significant in any of the models (not shown), indicating that there are no differences by race in how trust affects service use.

DISCUSSION

We identified 4 types of trust in the medical care system: 2 kinds of interpersonal trust in

TABLE 3-Logistic Regression Results for Preventive Health Services: Allegheny County, Pennsylvania, 2001-2002

	Flu Shot in Previous Year, OR (95% CI)	PSA Test in Previous Year Among Men, OR (95% CI)	Mammogram in Previous 2 Years Among Women, OR (95% CI)	Routine Checkup in Previous Year, OR (95% CI)
Black	0.66*** (0.52, 0.84)	0.75 (0.52, 1.08)	2.02*** (1.33, 3.06)	1.18 (0.80, 1.74)
Female	0.80 (0.62, 1.02)	• • •	***	0.85 (0.58, 1.25)
Age	1.04*** (1.02, 1.06)	0.98 (0.95, 1.01)	0.97 (0.94, 1.00)	1.00 (0.97, 1.03)
Education	0.99 (0.88, 1.12)	1.09 (0.92, 1.29)	1.21 (0.97, 1.51)	0.97 (0.80, 1.17)
Married	1.31* (1.01, 1.69)	0.95 (0.64, 1.42)	1.91** (1.24, 2.93)	0.89 (0.60, 1.33)
Physical component score (SF-8)	1.00 (0.98, 1.01)	1.02 (1.00, 1.04)	1.01 (0.99, 1.04)	0.99 (0.97, 1.02)
Mental component score (SF-8)	1.01 (1.00, 1.03)	1.02 (0.99, 1.04)	1.02 (0.97, 1.04)	1.01 (0.99, 1.03)
Number of health conditions	1.21*** (1.11, 1.31)	1.15* (1.02, 1.29)	1.07 (0.94, 1.22)	1.54*** (1.33, 1.78)
Has supplemental health insurance	1.63** (1.17, 2.26)	2.27*** (1.43, 3.59)	2.01** (1.18, 3.43)	2.25*** (1.43, 3.53)
Has regular provider	1.62* (1.04, 2.53)	1.76 (0.93, 3.33)	2.60** (1.30, 5.19)	3.80*** (2.28, 6.33)
Trust in formal health information sources	1.16 (0.72, 1.85)	0.80 (0.43, 1.51)	0.73 (0.32, 1.67)	0.70 (0.33, 1.50)
Trust in informal health information sources	1.06 (0.80, 1.40)	1.46 (0.97, 2.20)	1.60* (1.01, 2.55)	1.08 (0.70, 1.68)
Trust in one's own doctor	1.22 (0.55, 2.72)	8.59*** (2.66, 27.68)	3.97* (1.17, 13.55)	3.04* (1.02, 9.05)
Trust in the competence of doctors' care	0.80 (0.58, 1.11)	0.73 (0.45, 1.19)	0.84 (0.50, 1.41)	1.25 (0.75, 2.09)

Note. PSA = prostate-specific antigen; OR = odds ratio; CI = confidence interval.

*P \le .05; ** P \le .01; *** P \le .001

doctors (trust in one's own doctor and a more general trust in the competence of doctors' care) and 2 kinds of social trust in health information sources (trust in formal sources and trust in informal sources). It is noteworthy that questions assessing trust in one's own doctor and trust in the competence of doctors' care loaded on separate factors in the factor analysis, because many studies have found a single global factor encompassing these 2 dimensions. This finding may be unique to the elderly population studied and may also be partly because of the measurement properties of the questions assessing trust.

Utilizing scales based on these types of trust, we found that the level of trust in one's own doctor was high in both groups, but Blacks reported less trust in their doctor than did Whites. These results confirmed other studies indicating greater distrust of physicians among Blacks.^{6–9} However, trust differences by race were smaller than those found in some other studies, perhaps because of age and regional differences. Older adults are more likely to have had more interactions with health care providers and to have established greater continuity in relationships, both of which have been associated with greater trust in health care providers. In addition, Allegheny County has a high concentration of physicians and medical facilities, which may make access to care somewhat easier. Thus, older adults of both races are more likely to have had more continuous experience with the health care system, which may make them more likely to express trust in their physician.

There were no significant racial differences in trust in the competency of doctors' care, which was fairly low among both Blacks and Whites. There were also no significant racial differences in trust in health information from the local health department and the Centers for Disease Control and Prevention, which we found surprising, given widespread knowledge of the Tuskegee Syphilis Study (conducted by the US Public Health Service)10-12 and the broader history of racial discrimination in the US health care system. However, Blacks reported significantly more trust than did Whites in health information sources like family, friends, and church or religious leaders, reflecting the importance of informal social networks, faith communities, and extended family for Blacks. This suggests that health promotion messages utilizing

these avenues for dissemination may be important ways to reach this population.

We found that trust in one's own doctor played a significant role in increasing the likelihood of receiving routine checkups, PSA tests, and mammograms. This finding is consistent with previous research indicating that trust in physicians matters in the use of health services. Clearly, fostering trust between patients and physicians is an important way to increase preventive service use. The therapeutic relationship between patient and provider is the context in which patients are examined and given recommendations for preventive services, and patient trust is a major component of that relationship. Evidence has increasingly shown that racial and ethnic minorities receive lower-quality interpersonal care.²⁸ Thus, strengthening the physician-patient relationship and providing greater continuity of care will likely improve care, foster patient trust, and reduce care disparities.

Two other types of trust-trust in the competence of doctors' care and trust in formal health information sources-were not significantly related to preventive service use. However, greater trust in informal sources of health information among women was associated with a greater likelihood of having received a mammogram. It is noteworthy that the Black women in this sample, who were more likely to trust informal sources of health information, were also more likely to have received a mammogram. National efforts to target Black women with breast cancer education and screening through beauty salons and churches have met with success. 29-31 These findings suggest that campaigns to provide preventive care information to Blacks through informal conduits like beauty salons, barbershops, churches, and other community-based organizations may be an effective way to reduce disparities in care.³² We must caution, though, that informal networks in the Black community are also potential venues for the spread of conspiracy theories that may reduce the use of health services. 16,33,34

Although Blacks were less likely than were Whites to have received a flu shot, we did not find that trust played a significant role in this racial difference. This result is consistent with qualitative research concluding that mistrust of medical institutions did not significantly affect

willingness to be vaccinated among elderly Blacks. ³⁵ Other institutional and attitudinal factors such as disparities in access to clinical services, physician bias in delivery of services, patient resistance to vaccinations, and conspiracy theories among Blacks may play a greater role than does trust. ^{11,36,37} Thus, influenza vaccination may differ somewhat from other preventive health services with regard to factors that promote or inhibit utilization.

Finally, no significant interactions by race were found in the effects of trust on the 4 types of service use, indicating that these effects do not differ by race. Although Blacks had higher levels of distrust than did Whites, the lack of a racial influence on the effect of trust on service utilization suggests that efforts to increase trust in physicians and the health care system will work similarly well for Blacks and Whites and could increase utilization of preventive health services.

The tendency for some Blacks to favor conspiracy theories as an explanation for real or perceived abuse is a potential impediment to increasing preventive service use. The roots of conspiracy theories run deep in the African American experience; in that context, the Tuskegee Syphilis Study serves as contemporary validation of mistrust. Unfortunately, many Blacks still erroneously believe (despite evidence to the contrary) that the men in the Tuskegee Syphilis Study were actually injected with syphilis, 11,33,38,39 and this opinion continues to be disseminated through media and community sources. Consequently, preventive services that require injection are especially subject to distrust among Blacks. The broader public has also become more suspicious of immunizations. Further research should explore the issues that underlie reluctance to receive vaccinations and the extent to which conspiracy theories limit participation by Blacks.

Strengths and Limitations

A strength of this analysis is its large population-based sample with significant representation of both Black and White older adults. All socioeconomic groups were represented, including persons who do not interact with the health care system on a regular basis and who indeed may distrust it. It is the latter group that interventions must particularly target.

Our study was limited by the use of crosssectional data, which prevented us from

making causal inferences. Also, the data are self-reported and thus share the limitations of all self-report data: recall bias and other factors may affect measurement, and studies have found that self-reported data tend to overreport service use. 40-42 The response rate, although relatively low, is not unreasonable in the current climate for general population telephone surveys, but the exclusion of those with no telephone or with unlisted telephone numbers somewhat limits generalizability of the findings. However, the basic similarity of the sample with the general population on available measures makes lack of generalizability less of a concern. Because trust plays different roles in utilization of various preventive services, future research should examine other preventive health services and more comprehensive measures of trust for a more fine-grained analysis.

Conclusions

Although our results should be viewed with some caution, they support the conclusion that reducing patient distrust of physicians is likely to increase use of preventive services. Much research suggests that for minority populations, trust can be built through increasing the cultural sensitivity of medical professionals and institutions. This study also suggests that an effective way to increase preventive service use and reduce health disparities is to use trusted community organizations to disseminate health and prevention information, particularly for minority communities like the one studied. The higher level of mammogram receipt by Black women in the sample points to a strategy for increasing use of preventive services in general. Health promotion programs should incorporate community participation, using trusted social institutions and informal social networks to disseminate the public health message.

About the Authors

Donald Musa and Richard Schulz are with the University Center for Social and Urban Research, University of Pittsburgh, Pittsburgh, PA. Roderick Harris and Myrna Silverman are with the Department of Behavioral & Community Health Sciences, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Stephen B. Thomas is with the Center for Minority Health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh.

Requests for reprints should be sent to Donald Musa, University Center for Social and Urban Research, University of Pittsburgh, 121 University Place, Pittsburgh, PA 15260 (e-mail: dmuc@pitt.edu).

This article was accepted February 12, 2008.

Contributors

D. Musa originated the study, conducted the analysis, and was the article's primary author. R. Schulz reviewed and revised drafts. R. Harris reviewed and contributed to revision of drafts. M. Silverman was the principal investigator and reviewed drafts. S. B. Thomas wrote the trust questions and reviewed and revised drafts.

Acknowledgments

Preparation of this article was supported in part by grants from the National Institute on Nursing Research (NR08272 and NR009573), the National Institute on Aging (AG18308, AG024827, AG13305, AG015321, AG20677, and AG19180), the National Institute of Mental Health (MH071944), the National Center on Minority Health and Health Disparities (5P60MD000207–07), the National Heart, Lung, and Blood Institute (HL076852 and HL076858), and the National Science Foundation (EEEC-0540865), and by funding from the University Center for Social and Urban Research and the Center for Minority Health at the University of Pittsburgh, Pittsburgh, PA.

Human Participant Protection

This study was approved by the University of Pittsburgh institutional review board.

References

- Smedley BD, Stith AY, Nelson AR, eds. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Washington, DC: National Academies Press; 2003.
- 2. Centers for Disease Control and Prevention. Racial/ethnic disparities in influenza and pneumococcal vaccination levels among persons aged > or = 65 years − United States, 1989−2001. MMWR Morb Mortal Wkly Rep. 2003;52:958−962.
- 3. Gornick ME, Eggers PW, Reilly TW. Effects of race and income on mortality and use of services among Medicare beneficiaries. *N Engl J Med.* 1996;335: 791–799.
- 4. Gornick ME. A decade of research on disparities in Medicare utilization: lessons for the health and health care of vulnerable men. *Am J Public Health*. 2003;93:753–759.
- Chen JY, Diamant A, Pourat N, Kagawa-Singer M. Racial/ethnic disparities in the use of preventive services among the elderly. *Am J Prev Med.* 2005;29:388–395.
- LaVeist TA, Nickerson KJ, Bowie JV. Attitudes about racism, medical mistrust, and satisfaction with care among African American and white cardiac patients. Med Care Res Rev. 2000;57(suppl 1): 146–161.
- Corbie-Smith G, Thomas SB, St George SMM.
 Distrust, race, and research. Arch Intern Med.
 2002;162:2458–2463.
- 8. Boulware LE, Cooper LA, Ratner LE, LaVeist TA, Powe NR. Race and trust in the health care system. *Public Health Rep.* 2003;118:358–365.

- Halbert CH, Armstrong K, Gandy OH, Shaker L. Racial differences in trust in health care providers. Arch Intern Med. 2006;166:896–901.
- 10. Jones J. Bad Blood: The Tuskegee Syphilis Experiment. New York, NY: Macmillan; 1993.
- 11. Freimuth V, Quinn S, Thomas S. African Americans' views on research and the Tuskegee Syphilis Study. *Soc Sci Med.* 2001;52:797–808.
- 12. Corbie-Smith G, Thomas SB, Williams MV, Moody-Ayers S. Attitudes and beliefs of African Americans towards participation in medical research. *J Gen Intern Med.* 1999;14:537–546.
- 13. Stepanikova I, Mollborn S, Cook K, Thom DH, Kramer RM. Patients' race, ethnicity, language, and trust in a physician. *J Health Soc Behav.* 2006;47:390–405.
- 14. Civil Rights Congress. We Charge Genocide: The Historic Petition to the United Nations for Relief From a Crime of the United States Government Against the Negro People. New York, NY: International Publishers; 1970.
- 15. Bogart L, Thorburn S. Are HIV/AIDS conspiracy beliefs a barrier to HIV prevention among African Americans? *J Acquir Immune Defic Syndr.* 2005;38: 213–218.
- 16. Goertzel T. Belief in conspiracy theories. *Pol Psychol.* 1994;15(4):731–742.
- 17. Mechanic D, Schlesinger M. The impact of managed care on patients' trust in medical care and their physicians. *JAMA*. 1996;275: 1693–1697.
- 18. Pearson SD, Raeke LH. Patients' trust in physicians: many theories, few measures, and little data. *J Gen Intern Med.* 2000;15:509–513.
- 19. Hall MA, Dugan E, Zheng B, Mishra AK. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank Q.* 2001;79: 613–639.
- 20. Thom DH, Hall MA, Pawlson G. Measuring patients' trust in physicians when assessing quality of care. *Health Aff*. 2004;23:124–132.
- 21. Thom DH, Ribisl KM, Stewart AL, Luke DA. The Stanford Trust Physicians. Further validation and reliability testing of the trust in physician scale. *Med Care*. 1999;37:510–517.
- 22. O'Malley AS, Sheppard VB, Schwartz M, Mandelblatt J. The role of trust in use of preventive services among low-income African-American women. *Prev Med.* 2004;38:777–785.
- 23. Goldberg TH, Chavin SI. Preventive medicine and screening in older adults. *J Am Geriatr Soc.* 1997;45:344–354.
- Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 4th ed. Lenexa, KS: American Association for Public Opinion Research;
 2006.
- Ware JE, Kosinski M, Dewey JE, Gandek B. How to Score and Interpret Single-Item Health Status Measures: A Manual for Users of the SF-8 Health Survey. Lincoln, RI: Quality Metric Incorporated; 2001.
- Carrasquillo O, Lantigua RA, Shea S. Preventive services among Medicare beneficiaries with supplemental coverage versus HMO enrollees,

- Medicaid recipients, and elders with no additional coverage. *Med Care*. 2001;39:616–626.
- 27. Okoro CA, Strine TW, Young SL, Balluz LS, Mokdad AH. Access to health care among older adults and receipt of preventive services. Results from the Behavioral Risk Factor Surveillance System, 2002. *Prev Med.* 2005;40:337–343.
- 28. Cooper LA, Beach MC, Johnson RL, Inui TS. Delving below the surface: understanding how race and ethnicity influence relationships in health care. *J Gen Intern Med.* 2006;21:S21–S27.
- 29. Forte DA. Community-based breast cancer intervention program for older African American women in beauty salons. *Public Health Rep.* 1995;110: 179–183.
- Lewis Y, Shain L, Quinn S, Turner K, Moore T.
 Lessons from an STD/HIV peer educator program with African American barbers and beauticians.
 Health Promot Pract. 2002;3:133–143.
- 31. Linnan L, Ferguson Y. Beauty salons: a promising health promotion setting for reaching and promoting health among African American women. *Health Educ Behav.* 2007;34:517–530.
- 32. Browne M. Full service: talking about fighting prostate cancer—in the barber shop! *Health Educ Behav.* 2007;34(4):557–558.
- 33. Thomas S, Quinn S. The Tuskegee Syphilis Study 1932–1972: implications for HIV education and AIDS risk reduction programs in the Black community. *Am J Public Health*. 1991;81:1498–1505.
- 34. Parsons S, Simmons W, Shinhoster F, Kilburn J. A test of the grapevine: an empirical examination of conspiracy theories among African Americans. *Sociol Spectr.* 1999;19:201–222.
- 35. Harris LM, Chin NP, Fiscella K, Humiston S. Barrier to pneumococcal and influenza vaccinations in black elderly communities: mistrust. *J Natl Med Assoc.* 2006:98:1678–1684.
- 36. Hebert PL, Frick KD, Kane RL, McBean M. The causes of racial and ethnic differences in influenza vaccination rates among elderly Medicare beneficiaries. *Health Serv Res.* 2005;40:517–537.
- 37. Fiscella K. Commentary—anatomy of racial disparity in influenza vaccination. *Health Serv Res.* 2005;40: 539–549.
- 38. Quinn S. Belief in AIDS as a form of genocide: implications for HIV prevention programs for African Americans. *J Health Educ.* 1997;28(suppl 6): S6–S11
- Dalton H. AIDS in blackface. *Daedalus*. 1989:118:205–228.
- McGovern P, Lurie N, Margolis K, Slater J. Accuracy of self-report of mammography and Pap smear in a low-income urban population. *Am J Prev Med.* 1998;14: 201–208.
- 41. Newell S, Girgis A, Sanson-Fisher R, Savolainen N. The accuracy of self-reported health behaviors and risk factors relating to cancer and cardiovascular disease in the general population: a critical review. *Am J Prev Med.* 1999;17:211–229.
- 42. Skull S, Andrews R, Byrnes G, et al. Validity of self-reported influenza and pneumococcal vaccination among a cohort of hospitalized elderly inpatients. *Vaccine*. 2007;25: 4775–4783.